

lectureStudio – Tutorial 3: Editor

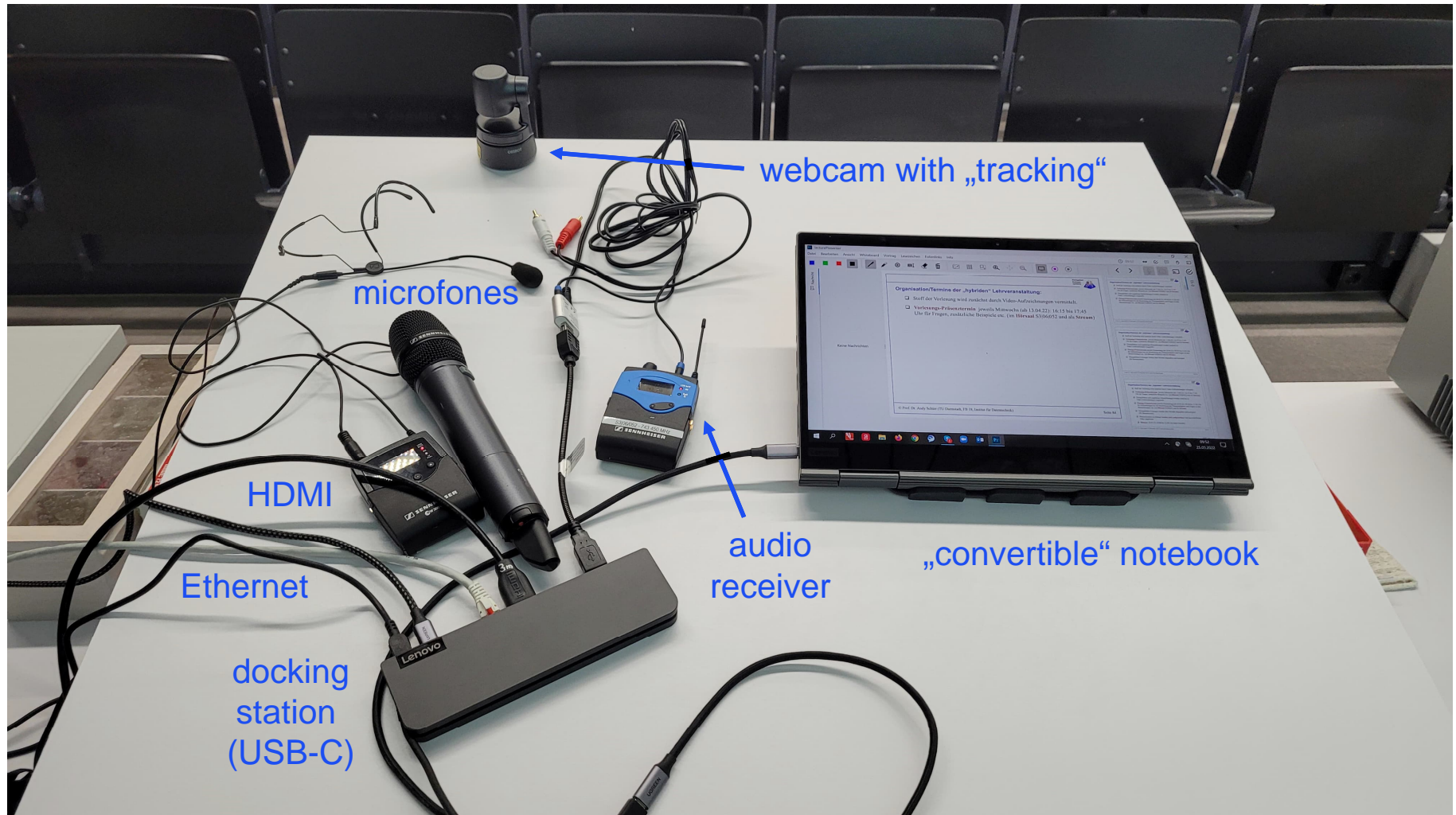
Alex Andres, Andreas Koch, *Andy Schürr*
Technical University of Darmstadt
<https://www.lecturestudio.org>



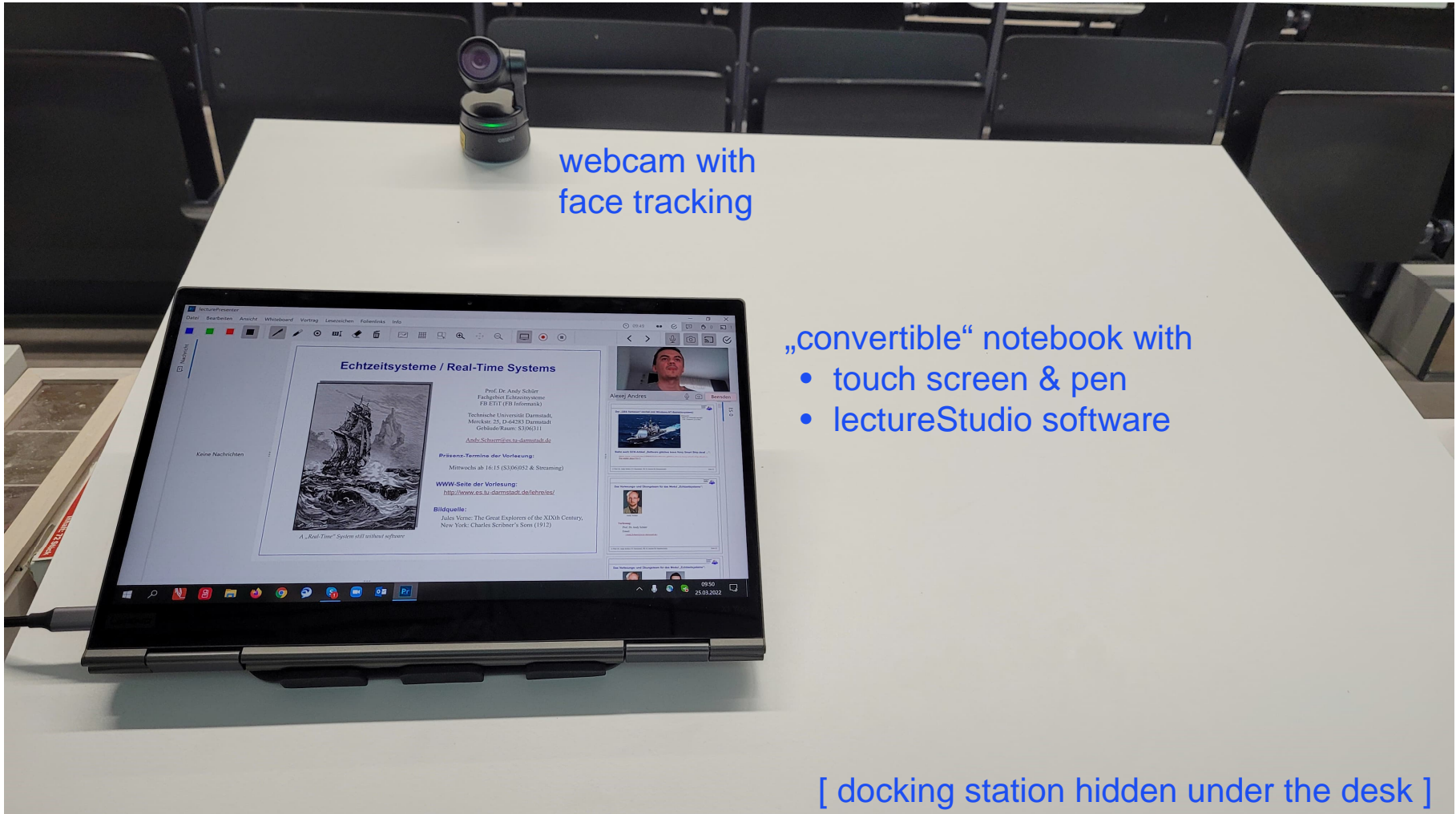
eTeaching Work Place in 2020, 2021, ...



Hybrid Setting (Lecture Hall & Streaming)



Hybrid Setting (Lecture Hall & Streaming)





Categories of eTeaching Tools

- presentation tools (with integrated whiteboard)
 - PowerPoint, pdfpc, ...
- presentation recording and postprocessing tools
 - Panopto, Camtasia, Snagit, ...
- streaming / video conference tools
 - BigBlueButton, Zoom, ...
- interactive poll/quiz execution tools
 - Pingo, Moodle, ...
- interactive group chat tools
 - Element, Zoom, ...
- ...

**lecture-
Studio**

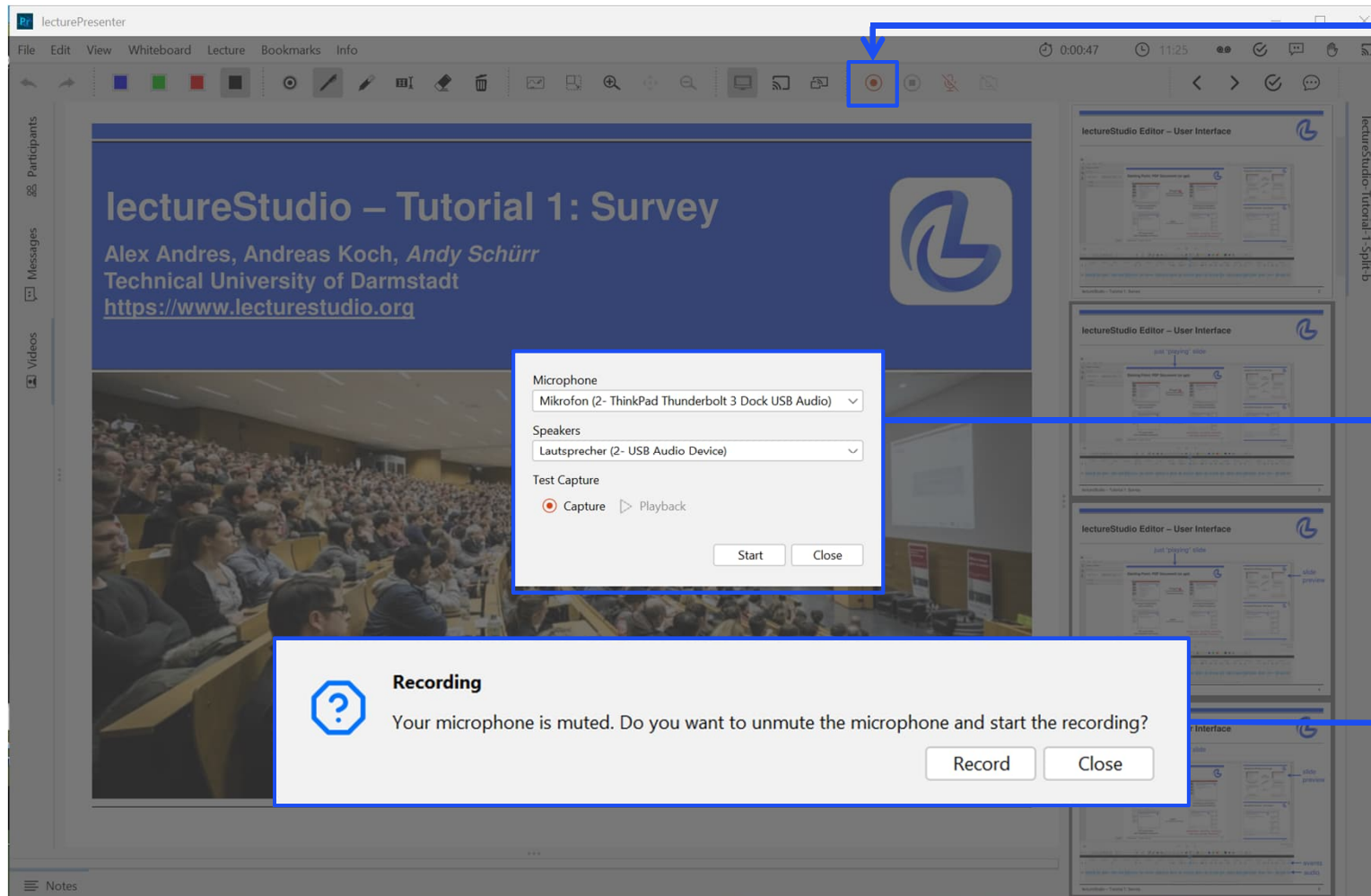


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 - Element, Zoom, ...
- ...

**lecture-
Studio**

lectureStudio Presenter – Start Recording



start
record

select
mic.

unmute
mic.

lectureStudio Editor – User Interface



video export config.

just “playing” slide

The screenshot displays the LectureStudio Editor interface with several key components and annotations:

- Left Panel:** Contains the 'Export as video' menu and a 'Create' button. An annotation 'render video' points to the 'Create' button.
- Top Panel:** Shows the 'Starting Point: PDF Document (or ppt)' section. An annotation 'just “playing” slide' points to the top of this section.
- Diagram:** A flow diagram illustrating the process of creating a presentation. It shows a 'Powerpoint presentation (with animations)' being converted to a 'Powerpoint presentation (with unfolded animations)' via a 'PPsplit (Powerpoint plugin)'. This is then 'opened' to create a 'PDF presentation (with embedded comments)', which is then used for 'presentation, recording, streaming (with lectureStudio Presenter)'.
- Right Panel:** Displays a 'slide preview' of the presentation content. An annotation 'slide preview' points to this panel.
- Bottom Panel:** Features a timeline and an audio waveform. An annotation 'play toolbar' points to the playback controls (play, stop, etc.) above the timeline. An annotation 'events' points to the timeline itself, which shows various time markers. An annotation 'audio' points to the waveform at the bottom.

lectureStudio Editor – Cut / Insert / Split



lectureEditor

File Edit View Info

Page events

Event	Time
Pointer	0:08:04

Starting Point: PDF Document (or ppt)

Powerpoint presentation (with animations) → PPSplit (Powerpoint plugin) → Powerpoint presentation (with unfolded animations)

Powerpoint presentation (with animations) → PDF creation → PDF presentation (with embedded comments)

PDF presentation (with embedded comments) → open → presentation, recording, streaming (with lectureStudio Presenter)

lectureStudio – Tutorial 1: Survey

28

lectureStudio Presenter – User Interface

Categories of eTeaching Tools

presentation tools (with integrated whiteboard?)

PowerPoint, pdf...

lectureStudio Presenter – User Interface

Categories of eTeaching Tools

presentation tools (with integrated whiteboard?)

PowerPoint, pdf...

presented slide

lectureStudio – Tutorial 1: Survey

30

split

1st part

2nd part

0:06:34 0:06:44 0:06:53 0:07:02 0:07:12 0:07:21 0:07:31 0:07:40 0:07:49 0:07:59 0:08:08 0:08:18 0:08:27 0:08:36 0:08:46 0:08:55 0:09:05 0:09:14 0

14 15 16 17 18 19 20 21 22 23 24 25

lectureStudio Editor – Cut / Insert / Split



lectureStudio Editor interface showing the workflow for creating a presentation from a PDF document.

Starting Point: PDF Document (or ppt)

The workflow diagram illustrates the process:

- Powerpoint presentation (with animations)** → **PPsplit (Powerpoint plugin)** → **Powerpoint presentation (with unfolded animations)**
- Powerpoint presentation (with unfolded animations)** → **PDF creation** → **PDF presentation (with embedded comments)**
- PDF presentation (with embedded comments)** → **open** → **presentation, recording, streaming (with lectureStudio Presenter)**

The interface also displays the **lectureStudio Presenter – User Interface** and the **lectureStudio – Tutorial 1: Survey** slide.

cut and **zoom** controls are highlighted in the bottom toolbar.

The bottom timeline shows the recording progress, with a time range from 0:06:34 to 0:09:14. The audio waveform is visible below the timeline.

lectureStudio Editor – Cut / Insert / Split



lectureEditor

File Edit View Info

Page events

Event	Time
Pointer	0:08:04

Starting Point: PDF Document (or ppt)

Categories of eTeaching Tools

Powerpoint presentation (with animations)

PPsplit (Powerpoint plugin)

PDF creation

open

PDF presentation (with embedded comments)

presentation, recording, streaming (with lectureStudio Presenter)

lectureStudio – Tutorial 1: Survey

28

lectureStudio Presenter – User Interface

Categories of eTeaching Tools

presentation tools (with integrated whiteboard?)

PowerPoint, pdf...

presented slide

lectureStudio – Tutorial 1: Survey

30

0:08:08 / 0:17:29

19 / 58

Search pages

0:06:34 0:06:44 0:06:53 0:07:02 0:07:12 0:07:21 0:07:31 0:07:40 0:07:49 0:07:59 0:08:08 0:08:18 0:08:27 0:08:36 0:08:46 0:08:55 0:09:05 0:09:14 0

14 15 16 17 18 19 20 21 22 23 24 25

insert

lectureStudio Editor – Cut / Insert / Split



lectureEditor

File Edit View Info

Page events

Event	Time
Pointer	0:08:04

Starting Point: PDF Document (or ppt)

Categories of eTeaching Tools

Powerpoint presentation (with animations)

PPsplit (Powerpoint plugin)

PDF creation

open

PDF presentation (with embedded comments)

presentation, recording, streaming (with lectureStudio Presenter)

lectureStudio Presenter – User Interface

Categories of eTeaching Tools

presentation tools (with integrated whiteboard?)

PowerPoint, pdf...

presented slide

lectureStudio – Tutorial 1: Survey

28

0:08:08 / 0:17:29

19 / 58

add/delete slide

move slide transition event

0:06:34 0:06:44 0:06:53 0:07:02 0:07:12 0:07:21 0:07:31 0:07:40 0:07:49 0:07:59 0:08:08 0:08:18 0:08:27 0:08:36 0:08:46 0:08:55 0:09:05 0:09:14 0

14 15 16 17 18 19 20 21 22 23 24 25

Search pages

lectureStudio Editor – Fix „Typos“ on Slides



lectureEditor

File Edit View Info

Page events

Event	Time
Pointer	0:08:04
Text selection	0:08:08

Starting Point: PDF Document (or ppt)

Categories of eTeaching Tools

Powerpoint presentation (with animations)

PDF presentation (with embedded comments)

ppschplit (Powerpoint plugin)

PDF creation

open

presentation, recording, streaming (with lectureStudio Presenter)

lectureStudio – Tutorial 1: Survey

8

lectureStudio Presenter – User Interface

Categories of eTeaching Tools

presentation tools (with integrated whiteboard?)

PowerPoint, pdfjs, ...

presented slide

lectureStudio – Tutorial 1: Survey

38

replace slide(s)

0:06:34 0:06:44 0:06:53 0:07:02 0:07:12 0:07:21 0:07:31 0:07:40 0:07:49 0:07:59 0:08:08 0:08:18 0:08:27 0:08:36 0:08:46 0:08:55 0:09:05 0:09:14 0

14 15 16 17 18 19 20 21 22 23 24 25

0:08:08 / 0:17:29

19 / 58

Search pages

lectureStudio Editor – Fix „Typos“ on Slides



Replace page

☐ Replace All Pages
This option can only be selected, if both documents contain the same number of pages.

☒ Replace Selected Page
This option replaces the selected page and afterwards selects the next page of both documents.

New page

Starting Point: PDF Document (or ppt)

Current page

Starting Point: PDF Document (or ppt)

Navigation: 1 / 1

Search document

Buttons: Discard, Replace, Apply

lectureStudio Editor – Modifying Annotations



lectureEditor

File Edit View Info

Page events

Event	Time
Pointer	0:08:04
Text selection	0:08:08

delete

Starting Point: PDF Document (or ppt)

Categories of eTeaching Tools

Powerpoint presentation (with animations)

PPspltT (Powerpoint plugin)

PDF creation

PDF presentation (with embedded comments)

open

presentation, recording, streaming (with lectureStudio Presenter)

lectureStudio Presenter – User Interface

Categories of eTeaching Tools

presentation tools (with integrated whiteboard?)

PowerPoint, pdf...

presented slide

new text highlight

0:08:08 / 0:17:29
19 / 58

Search pages

0:06:34 0:06:44 0:06:53 0:07:02 0:07:12 0:07:21 0:07:31 0:07:40 0:07:49 0:07:59 0:08:08 0:08:18 0:08:27 0:08:36 0:08:46 0:08:55 0:09:05 0:09:14 0

14 15 16 17 18 19 20 21 22 23 24 25

lectureStudio Editor – Modifying Annotations



lectureEditor

File Edit View Info

Audio effects

▼ Noise Reduction

Define selected time interval as silence [Save]

Sensitivity: 0,1

Audio snippet [Play]

Frequency (Hz): 21.000, 18.000, 15.000, 12.000, 9.000, 6.000, 3.000

Time (s): 0, 5, 10

Denoise [On Trial] [Final]

► Loudness Normalization

Starting Point: PDF Document (or ppt)

PPsplit (Powerpoint plugin)

PDF creation

open

Powerpoint presentation (with animations)

Powerpoint presentation (with unfolded animations)

PDF presentation (with embedded comments)

presentation, recording, streaming (with lectureStudio Presenter)

lectureStudio – Tutorial 1: Survey

8

lectureStudio Presenter – User Interface

Categories of eTeaching Tools

- presentation tools (with integrated whiteboard?)
- PowerPoint, pdfjs, ...

lectureStudio – Tutorial 1: Survey

19

lectureStudio Presenter – User Interface

Categories of eTeaching Tools

- presentation tools (with integrated whiteboard?)
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presented slide

lectureStudio – Tutorial 1: Survey

20

0:08:08 / 0:17:29
19 / 58

Search pages

0:06:34 0:06:44 0:06:53 0:07:02 0:07:12 0:07:21 0:07:31 0:07:40 0:07:49 0:07:59 0:08:08 0:08:18 0:08:27 0:08:36 0:08:46 0:08:55 0:09:05 0:09:14 0

14 15 16 17 18 19 20 21 22 23 24 25

lectureStudio Editor – Annotation Tools



lectureEditor

File Edit View Info

Page events

Event	Time
Pen	0:11:56
Pointer	0:12:01
Pointer	0:12:08

delete

lectureStudio Presenter – Video „Call“

Chat Contribution

Does lectureStudio make use of a distributed Peer-to-Peer or a centralized server architecture to distribute PDF documents to clients?

Ncr!

lectureStudio – Tutorial 1: Survey

42

lectureStudio Client – Quiz Functionality

Stream UI

Quiz / Poll

lectureStudio – Tutorial 1: Survey

43

lectureStudio Client – Quiz Functionality

Lecture Hall UI

Quiz / Poll

lectureStudio – Tutorial 1: Survey

44

0:11:57 / 0:17:29
33 / 58

add text

Search pages

0:00:00 0:00:56 0:01:52 0:02:49 0:03:45 0:04:41 0:05:38 0:06:34 0:07:31 0:08:27 0:09:23 0:10:20 0:11:16 0:12:12 0:13:09 0:14:05 0:15:02 0:15:58 0:16:54

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58

lectureStudio Editor – Annotation Tools



Ed lectureEditor

File Edit View Info

Page events

Event	Time
Text	0:11:56
Pointer	0:12:01
Pointer	0:12:08

lectureStudio Presenter – Video „Call“

Chat Contribution

Does lectureStudio make use of a distributed Peer-to-Peer or a centralized server architecture to distribute PDF documents to clients?

No, lectureStudio relies on a client/server architecture.

lectureStudio – Tutorial 1: Survey

42

lectureStudio Client – Quiz Functionality

Stream UI

Quiz / Poll

lectureStudio – Tutorial 1: Survey

43

lectureStudio Client – Quiz Functionality

Lecture Hall UI

Quiz / Poll

lectureStudio – Tutorial 1: Survey

44

0:11:56 / 0:17:29
33 / 58

Search pages

0:00:00 0:00:56 0:01:52 0:02:49 0:03:45 0:04:41 0:05:38 0:06:34 0:07:31 0:08:27 0:09:23 0:10:20 0:11:16 0:12:12 0:13:09 0:14:05 0:15:02 0:15:58 0:16:54

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58

lectureStudio Editor – Noise Red. / Loudness Norm.



The screenshot displays the LectureStudio Editor interface. On the left, the 'Audio effects' panel is active, showing 'Noise Reduction' settings with a sensitivity of 0.1 and a 'Loudness Normalization' section. The main preview area shows a video titled 'lectureStudio – Tutorial 1: Survey' by Alex Andres, Andreas Koch, and Andy Schürr, with a URL to the website. The video shows a large lecture hall filled with students. On the right, there are two smaller preview windows: 'eTeaching Work Place in 2020, 2021, ...' and 'Hybrid Setting (Lecture Hall & Streaming)'. The bottom of the interface features a timeline with a blue audio waveform and a playback control bar with various icons for editing and navigation.

lectureStudio Editor – Video Rendering Parameters



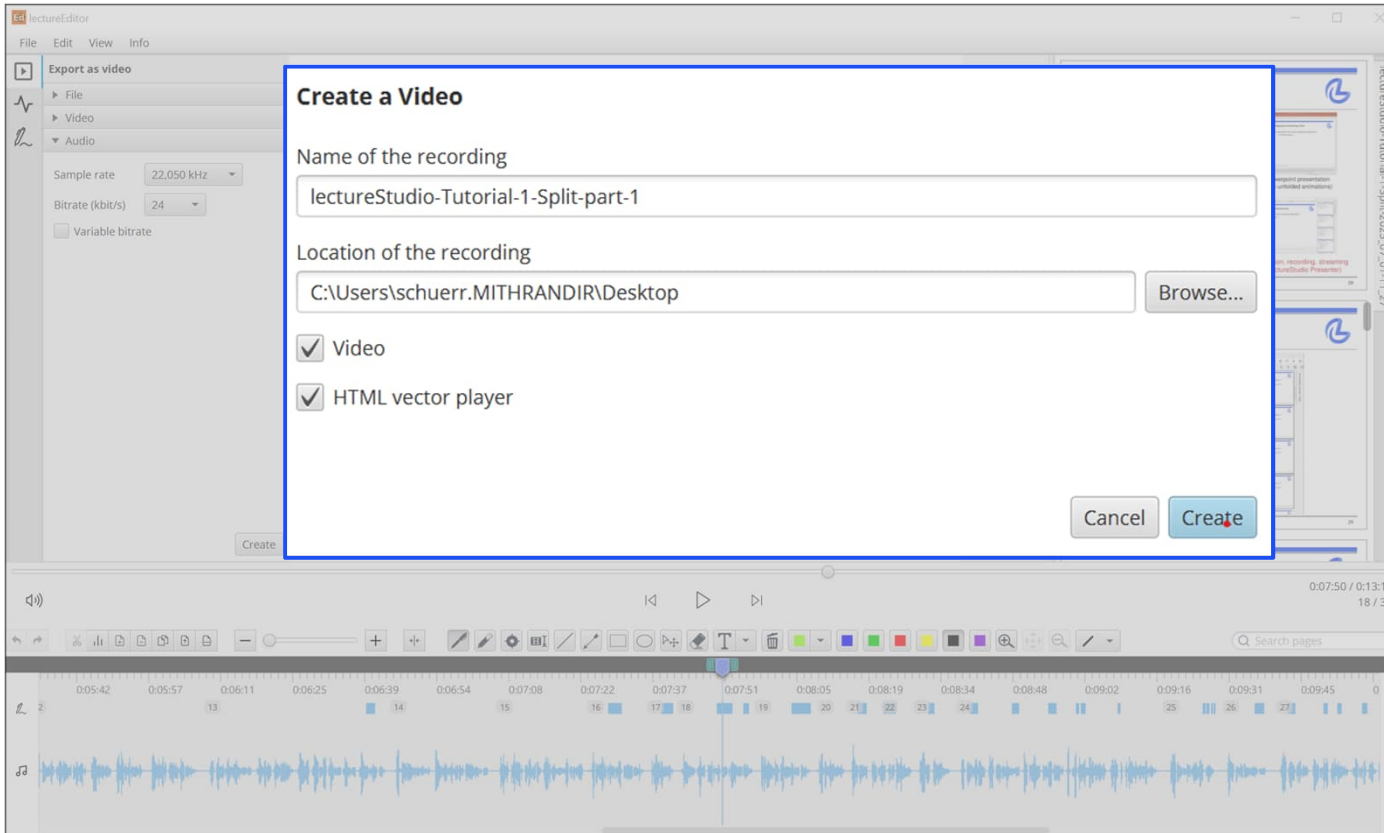
The screenshot displays the LectureStudio Editor interface. On the left, the 'Export as video' panel is open, showing settings for video and audio. The video settings include Dimensions (1024 x 768), Frame rate (15), and Bitrate (32 kbit/s). The audio settings include Sample rate (22,050 kHz), Bitrate (24 kbit/s), and a checkbox for Variable bitrate. A 'Create' button is at the bottom of the panel.

The main preview area shows a video frame with a blue header containing the text 'lectureStudio – Tutorial 1: Survey', the names 'Alex Andres, Andreas Koch, Andy Schürr', the institution 'Technical University of Darmstadt', and the URL 'https://www.lecturestudio.org'. Below the header is a wide-angle shot of a large lecture hall filled with students.

On the right, a vertical list of video thumbnails is visible. The first thumbnail is titled 'eTeaching Work Place in 2020, 2021, ...' and shows a desk setup with multiple monitors and a webcam. The second thumbnail is titled 'Hybrid Setting (Lecture Hall & Streaming)' and shows a desk setup with a laptop, microphone, and various cables.

At the bottom, a timeline and audio waveform are displayed. The timeline shows a duration of 0:00:00 to 0:17:29, with a progress bar at 1 / 58. The audio waveform shows a blue signal across the timeline.

lectureStudio Editor – Video Rendering



- **mp4 video:**
~ 0,4 MB / sec.
(1024 x 768)
+ html page
- **pdf-based:**
~ 0,4 MB / sec.
+ player code
- **rendering time:**
~ 0,15 sec. / sec.

Rendering parameters: video resolution, frame rate, bitrate, audio codec, ...

lectureStudio – Player UI (Browser-based)



⌵ Sidebar
⌵ 1 of 7 Comparison
🔍

Comparison of eTeaching Tools

Funktion	lectureStudio	pdfpc	BigBlueButton	Panopto	Zoom
Presentation	PDF + annotat., screenshares	PDF doc. + annotations	screenshares, PDF/... → SVG	screenshares	screenshares + annotations
Whiteboard	✓	(✓)	✓	✗	✓
Recording	PDF + events + audio + screens	✗	screenshares, PDF/... → SVG	screenshares, (video-based)	screenshares, (video-based)
Postprocessing	✓!!!	✗	✗	✓ Online	✗
Streaming	PDF + events + audio + screens	✗	screenshare, PDF/... → SVG	screenshare, (video-based)	screenshare, (video-based)
Chat	✓	✗	✓	✗	✓
Whiteboard	✓	✗	✓	Whiteboard	✓
Open Source	✓	✓	✓	✗	✗
Webinar	✓	✗	✗	✗	✗

▶ 3:38 / 13:17
🔊 🔍 ⌵ ⌶

← search tool

← slide preview

← „playing“ slide

lectureStudio Editor – Available Operations



- Deleting parts of a presentation
- Splitting and merging presentations
- Adding and deleting annotations (highlighting, ...)
- Moving, adding or deleting slide transition events
- Replacing (sequences of) PDF slides
- Noise reduction and loudness normalization
- Video rendering (mp4, pdf-based vector format)
- PDF export of slides with annotations

lectureStudio – Tutorial 3: Editor

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<https://www.lecturestudio.org>



Financial Support:

- Collaborative Research Center 1053 MAKI
(<https://www.maki.tu-darmstadt.de/>)
- Dept. of Electrical Engineering & Information Technology, TU Darmstadt
(<https://www.etit.tu-darmstadt.de/fachbereich/>)
- Dept. of Computer Science, TU Darmstadt
(<https://www.informatik.tu-darmstadt.de/fb20/>)